

drop (leaving out only the very tip) in fine supple Kids-leather very closely, I nipped off the small top, and found, as I expected, that notwithstanding this skin of Glue, and the close wrapping up in Leather, upon the breaking of the top, the drop gave a crack like the rest, and gave my hand a pretty brisk impulse: but yet the skin and leather was so strong as to keep the parts from flying out of their former posture; and, the skin being transparent, I found that the drop retained exactly its former figure and polish, but was grown perfectly opacous and all over flaw'd, all those flaws lying in the manner of rings, from the bottom or blunt end, to the very top or small point. And by several examinations with a *Microscope*, of several thus broken, I found the flaws, both within the body of the drop, and on the outward surface, to lye much in this order.

Let AB in the Figure X of the fourth Scheme represent the drop cased over with *Ichtyocolla* or *Isinglass*, and (by being ordered as is before prescribed) crazed or flawed into pieces, but by the skin or case kept in its former figure, and each of its flawed parts preserved exactly in its due posture; the outward appearance of it somewhat plainly to the naked eye, but much more conspicuous if viewed with a small lens appeared much after this shape. That is, the blunt end B for a pretty breadth, namely, as far as the Ring CCC seemed irregularly flawed with divers clefts, which all seemed to tend towards the Center of it, being, as I afterwards found, and shall anon shew in the description of the figure Y, the Basis, as it were, of a Cone, which was terminated a little above the middle of the drop, all the rest of the Surface from CCC to A was flawed with an infinite number of small and parallel Rings, which as they were for the most part very round, so were they very thick and close together, but were not so exactly flaw'd as to make a perfect Ring, but each circular part was by irregular cracks flawed likewise into multitudes of irregular flakes or tiles; and this order was observed likewise the whole length of the neck,

Now though I could not so exactly cut this *conical Body* through the *Axis*, as is represented by the figure Y; yet by *anatomizing*, as it were, of several, and taking notice of divers particular circumstances, I was informed, that could I have artificially divided a flaw'd drop through the *Axis* or *Center*, I should with a *Microscope* have found it to appear much of this form, where A signifies the *Apex*, and B the blunt end, CC the Cone of the Basis, which is terminated at T the top or end of it, which seems to be the very middle of the blunt end, in which, not only the conical body of the Basis CC is terminated, but as many of the parts of the drop as reach as high as DD.

And it seemed to be the head or beginning of a Pith, as it were, or a part of the body which seemed more spongy then the rest, and much more irregularly flawed, which from T ascended by EE, though less visible, into the small neck towards A. The Grain, as it were, of all the flaws, that from all the outward Surface ADCDA, was much the same, as is represented by the black strokes that meet in the middle DT, DE, DE, &c.

Nor

Nor is this kind of Grain, as I may call it, peculiar to Glass drops thus quenched; for (not to mention *Copras-stones*, and divers other *Marchasites* and *Minerals*, which I have often taken notice of to be in the very same manner flaked or grained, with a kind of Pith in the middle) I have observed the same in all manner of cast Iron, especially the coarser sort, such as Stoves, and Furnaces, and Backs, and Pots are made of: For upon the breaking of any of those Substances it is obvious to observe, how from the out-sides towards the middle, there is a kind of Radiation or Grain much resembling this of the Glass-drop; but this Grain is most conspicuous in Iron-bullets, if they be broken: the same *Phænomena* may be produced by casting *regulus* of *Antimony* into a Bullet-mold, as also with *Glass of Antimony*, or with almost any such kind of *Vitrified Substance*, either cast into a cold Mold or poured into Water.

Others of these Drops I heat red hot in the fire, and then suffered them to cool by degrees. And these I found to have quite lost all their *fulminating* or flying quality, as also their hard, brittle and springy texture; and to emerge of a much softer temper, and much easier to be broken or snapt with ones finger; but its strong and brittle quality was quite destroyed, and it seemed much of the same consistence with other green Glass well nealed in the Oven.

The Figure and bigness of these for the most part was the same with that of the Figure Z; that is, all the surface of them was very smooth and polished, and for the most part round, but very rugged or knobbed about D, and all the length of the stem was here and there pitted or flatted. About D, which is at the upper part of the drop under that side of the stem which is concave, there usually was made some one or more little Hillocks or Prominences. The drop it self, before it be broken, appears very transparent, and towards the middle of it, to be very full of small Bubbles, of some kind of aerial substance, which by the refraction of the outward surface appear much bigger then really they are; and this may be in good part removed, by putting the drop under the surface of clear Water, for by that means most part of the refraction of the convex Surface of the drop is destroyed, and the bubbles will appear much smaller. And this, by the by, minds me of the appearing magnitude of the *aperture* of the *iris*, or *pupil* of the eye, which though it appear, and be therefore judged very large, is yet not above a quarter of the bigness it appears of, by the *lenticular* refraction of the *Cornea*.

The cause of all which *Phænomena* I imagine to be no other then this, That the Parts of the Glass being by the excessive heat of the fire kept off and separated one from another, and thereby put into a kind of sluggish fluid consistence, are suffered to drop off with that heat or agitation remaining in them, into cold Water; by which means the out-sides of the drop are presently cool'd and *crusted*, and are thereby made of a loose texture, because the parts of it have not time to settle themselves leisurely together, and so to lie very close together: And the innermost parts of the drop, retaining still much of their former heat and agitations, remain

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